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Claims

1. Method for controlling (CTRL, VDEC) the insertion of additional fields or frames into a first format (24p) picture sequence in order to construct therefrom a second format (25fps) picture sequence the frame frequency of which is constant and is greater than that of the first format picture sequence, **characterised** by the steps:
   - determining (CTRL, VDEC, ADEC) locations of fields or frames in said first format picture sequence at which locations the insertion of a corresponding additional field or frame causes a minimum visible motion judder (MJT) in said second format picture sequence;
   - inserting (CTRL, VDEC) in said first format picture sequence a field or a frame at some of said locations at non-regular field or frame insertion distances (FRD) such that in total the average distance between any adjacent frames corresponds to that of said second format picture sequence;
   - presenting said first format picture sequence together with said non-regularly inserted fields and/or frames in the format of said second format picture sequence.

2. Apparatus for controlling (CTRL, VDEC) the insertion of additional fields or frames into a first format (24p) picture sequence in order to construct therefrom a second format (25fps) picture sequence the frame frequency of which is constant and is greater than that of the first format picture sequence, said apparatus being **characterised** by means (CTRL, VDEC, ADEC) that are adapted for determining locations of fields or frames in said first format picture sequence at which locations the insertion of a corresponding additional field or frame causes a minimum visible motion judder (MJT) in said second format picture sequence, and for inserting in said first format picture sequence a

16

field or a frame at some of said locations at non-regular field or frame insertion distances (FRD) such that in total the average distance between any adjacent frames corresponds to that of said second format picture sequence,

5   and for presenting said first format picture sequence together with said non-regularly inserted fields and/or frames in the format of said second format picture sequence.

10 3. Method according to claim 1, or apparatus according to claim 2, wherein said first format (24p) picture sequence is stored or recorded on a storage medium (D), e.g. an optical disc or a harddisk, or is broadcast or transferred as a digital TV signal.

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4. Apparatus according to claim 2 or 3, said apparatus being an optical disc player or an optical disc recorder, or a harddisk recorder, e.g. an HDD recorder or a PC, or a settop box, or a TV receiver.

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5. Apparatus according to one of claims 2 to 4, said apparatus being an optical disc player or an optical disc recorder or a harddisk recorder or a settop box, wherein said apparatus outputs either the original first format

25   (24p) picture sequence or said second format (25fps) picture sequence, which choice is controlled by replay mode information received either automatically from an interface (IF) that is connected to a device including a display device, or is received from a user interface (UI).

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6. Method according to claim 1 or 3, or apparatus according to one of claims 2 to 5, wherein said first format (24p) picture sequence has a frame frequency of essentially 24Hz and said second format (25fps) picture sequence has

35   a frame frequency of 50Hz.

7. Method according to one of claims 1, 3 or 6, or apparatus according to one of claims 2 to 6, wherein said field or frame insertion locations in said first format picture sequence are frames or fields that do not contain large moving picture content areas, the motion being determined by evaluating motion vectors.

8. Method according to one of claims 1, 3, 6 or 7, or apparatus according to one of claims 2 to 7, wherein said field or frame insertion locations in said first format picture sequence are frames or fields at which scene changes or a fade-to-black or a fade-to-white or a fade to any colour occurs.

9. Method according to one of claims 1, 3 or 6 to 8, or apparatus according to one of claims 2 to 8, wherein said field or frame insertion locations in said first format picture sequence are controlled such that in said second format picture sequence the maximum picture content delay caused by the insertion irregularity is kept smaller than average in case a slowly moving or static scene and speech or sound peaks in the audio information assigned to said first format picture sequence are detected.

10 Method according to one of claims 1, 3 or 6 to 9, or apparatus according to one of claims 2 to 9, wherein the inserted fields or frames are motion compensated before being output in said second format picture sequence.